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Safe Choices: An Examination of Contraceptive Choices of the Patient Population of Planned Parenthood of Central Ohio

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Abstract:

Objective: This study sought to evaluate the variation between racial groups and contraceptive methods chosen by women served by Planned Parenthood of Central Ohio (PPCO) in 2009 in order to better understand the issue of unintended pregnancy.

Methods: This two part study used administrative records provided by PPCO that included raw data for all women who were scheduled for an appointment to receive, or be consulted on contraception from January 1, 2009 through December 31, 2009 which included three PPCO clinic locations in Franklin County, Ohio. A chi-square analysis was performed with java-based mathematical software from the MathBeans Project to test the association between racial/ethnic groups and contraceptive methods. Secondly, a chart review was performed to determine length of use, and problems and complications experienced by women who had acquired an intrauterine device (IUD). The sample consisted of 24,370 women who used some type of contraception and 265 charts were evaluated.

Results: The results showed there was a significant difference among racial groups and contraceptive methods chosen by this population. An overall majority of the population chose oral contraceptives, followed by condoms. African American women received the most Depo Provera injections. Women between ages 20-24 years made up the largest percentage of clinic patients with 37%, compared to ages 12-14 years, having the lowest percentage in 2009. Approximately 9.9% of the sample had the IUD removed for complications such as excess bleeding, cramping, extreme pain, while 2.2% had it removed for other reasons such as family planning.

Conclusions: The results of this study may support public health officials in developing more effective strategies to increase contraceptive use and ultimately decrease unintended pregnancy. All levels of preventative care should be implemented to address socioeconomic barriers, understanding cultural differences, and providing community health resources in order to lower unintended pregnancy.

Chapter 1: Introduction

Problem

In the United States, teen pregnancies have declined over the years due to the increased use of contraceptives and the availability of more effective contraceptive methods. Over the last decade, there are more contraceptive methods for women to choose from than ever before such as Depo-Provera injections, NuvaRing ® (vaginal ring), and Mirena ® (intrauterine system) that are nondaily hormonal contraceptives.

As a country, the United States still trails behind other developed countries in making progress towards the prevention of unintended pregnancies. Unintended pregnancy can be a persistent issue that adversely affects families and the children (Bryant, 2009). This issue can potentially force young women to make difficult decisions that could have negative consequences, such as delaying of prenatal care or other risky maternal behaviors. Infants from an unintended pregnancy are at greater risk for being abused and having a low birth weight (Kost, Landry, & Darroch, 1998).

While this issue is prevalent among young women in the US, there is a large gap between minority groups and whites that demonstrate young women of color have higher rates of unintended pregnancies, births, and abortions, especially those who live in poverty. In recent years, Hispanic and African American teen girls were more likely than whites to become pregnant at least once before age 20 (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Planned Parenthood recognizes these disparities and has served these diverse communities for decades. This study will give Planned Parenthood more information about the contraceptive choices made

by the patient population they serve in the Columbus area to help prevent unintended pregnancies.

Purpose of Study

The purpose of this study was to evaluate the variation between racial groups and contraceptive methods chosen by women served by Planned Parenthood of Central Ohio (PPCO) in 2009, in order to better understand the issue of unintended pregnancy within this population.

For many decades, Planned Parenthood has been a passionate advocate for women's health, rights, and family planning. Since 1932, PPCO has been a trusted source of reproductive health care and has served people who are uninsured, underinsured, or unemployed throughout Central Ohio. This study will help PPCO create strategies to better educate them on contraceptive use and address their reproductive needs and concerns most effectively. This research addressed the following questions:

- Are there differences among racial/ethnic groups in the type of contraceptives chosen by women served by Planned Parenthood of Central Ohio?
- What was the extent of contraceptive use in the past by each racial/ethnic group?
- If an IUD was used, how long was the method used, and what if any complications occurred as a result?

The study utilized administrative data and chart reviews to examine differences among racial/ethnic groups in contraceptive methods chosen by clients of a family

planning clinic and the impact of using an intrauterine device. With a diverse population and the availability of highly effective contraceptive methods, it is important to analyze the needs of the patients and study what women use to protect themselves from unintended pregnancies.

This study included all female patients who were scheduled for an appointment to receive, or be consulted on contraception from three PPCO clinics in Franklin County during 2009. PPCO provided administrative data for all women meeting the above criteria within the stated timeframe from all three PPCO clinic locations. The clinics were the North Campus Health Center, Franklinton Health Center and East Health Center. Variables to be examined include age, race/ethnicity, and chosen contraceptive method. Three primary racial/ethnic groups were represented in the sample: African American, Caucasian, and those of Hispanic origin. This study compared choice of contraceptive method within each racial group, including use of oral contraceptives, the Depo Provera shot, intrauterine devices, condoms, other methods and nonuse.

Chapter 2: Review of the Literature

Repercussions of Unintended Pregnancies

According to the Centers for Disease Control and Prevention, an unintended pregnancy is a pregnancy that is either unwanted or mistimed. Conception can occur earlier than expected, or after the woman has achieved her desired family size. In the United States, unintended pregnancy still remains a public health issue compared to other developed countries (Singh & Darroch, 2000; CDC, 2009). In 2006, the United States teen birth rate (41.9 per 1000) was three times greater than the rate in Canada (13.3 per 1000), and more than eight times higher than to the teen birth rate in Japan (5.1 per 1000) (United Nations Statistics Division, 2006).

Unintended pregnancies occur in all population subgroups. Some research suggests that in the United States the risk for unintended pregnancy is higher for certain groups , including teenagers, women aged 20-24 years or aged 40 years and older, women with lower levels of education and income, minorities, and the unmarried (Cubbin, Braveman, Marchi, Chavez, Santelli, & Gilbert, 2002).

Mother and Infant Health

Unintended pregnancies are linked with a variety of behaviors that can potentially affect the health of the mother and baby. One study found that women with unintended pregnancies are more likely to participate in riskier maternal behaviors, and experience worse infant outcomes than women with mistimed pregnancies (D'Angelo, Gilbert, Rochat, Santelli, & Herold, 2004). Women with unwanted or mistimed pregnancies are less likely to seek out or use any maternal and child health services than women with intended pregnancies (Ragupathy, 1997). Women who choose to continue a mistimed

or unwanted pregnancy may have a greater chance of premature birth, and greater risk having a low birth weight infant due to inadequate weight gain by the mother (Logan, Holcombe, Manlove, & Ryan, 2007). Some research indicates that maternal attitudes, such as denying the pregnancy and unhappiness about the pregnancy, were associated with delayed prenatal care (Sable & Wilkinson, 1998). One study suggests that women with unintended pregnancies are less likely to recognize an early pregnancy, which may explain their delayed start of prenatal care (Kost et al., 1998). Another study found that women with unintended pregnancies are less likely to breastfeed, an important finding that holds across various data sources, samples and methods (D'Angelo, Gilbert, Rochat, Santelli, & Herold, 2002).

Unfortunately, the consequence of an unintended pregnancy does not end at birth. Children from unintended or unwanted pregnancies could undergo long term effects, such as chronic medical conditions and behavior problems. They could also develop lower levels of self esteem as they become older based on the mother's reaction to the pregnancy (Logan et al., 2007). Children of teenage mothers are more likely to have lower cognitive achievement and kindergarten proficiency scores (Hoffman, 2008; CDC, 2009). These children may replicate the same behavior and have a child at a young age as well.

Social Cost

Unintended pregnancies can impact women's health, families, education, and economic development. Teen mothers are less likely to complete high school, more likely to have additional pregnancies during their teen years, and their children may be more susceptible to learning and development problems, as compared to women who

delay childbirth (Brace, Hall, & Hunt, 2008). Multiple interruptions in education may lead the teen mother to drop out of high school.

Kendall, Afable-Munsuz, Abery, Schmidt, and Santinelli (2005) found that teen mothers tend to become and remain single parents. The pressures of adolescence and motherhood can stress the relationship between the young mother and father. While young women believed that pregnancy would bring them closer to their boyfriends, the demands of motherhood eventually caused many of these relationships to end (Kendall, Afable-Munsuz, Abery, Schmidt, & Santinelli, 2005).

Trussell (2006) believed that unintended pregnancies are a costly problem in the United States, and the use of contraceptives could potentially reduce some of this cost to society. They based their information on the 2002 National Survey of Family Growth. According to their research, the cost of unintended pregnancies induced abortions ($797 million), miscarriage ($266 million), and births ($3.924 billion), giving a total cost of $5.0 billion. They conclude that if fewer unintended pregnancies occurred, the cost associated with miscarriages and induced abortion would be lower. The authors recommend the use of long –acting contraceptives such as Depo Provera, dual birth control methods and emergency contraception to help reduce the overall cost of unintended pregnancies (Trussell, 2006).

Additional research found that women who fell below 200% of the federal poverty level in 2001 were more likely to have an unintended pregnancy and an abortion compared to women with incomes above 200% of the federal poverty level (Kaiser Family Foundation, 2006). Poor women depend more heavily on public assistance and

publicly funded family planning clinics. If these services are unavailable in the community, access becomes a problem.

Comparing Contraceptive Methods

There are many reasons why some women decide to utilize contraceptives and others do not. Some reasons women may fail to consistently and appropriately use contraception are because the method is difficult, they are dissatisfied with available methods, and/ or their partner may oppose the method (The National Survey of Family Growth, 2010). Imperfect or incorrect use of contraception often leads to contraceptive failure and, consequently, an unintended birth may occur (The National Survey of Family Growth, 2010). When women stop using a contraceptive method, they often do not immediately begin to use another method, opening the risk of unintended pregnancy during periods when they are not using contraception. Reducing the high rate of contraceptive failure and the discontinuation rate of contraceptive use would help decrease the proportion of unintended pregnancies (Frost, Darroch, & Remez, 2008).

According to the CDC, the leading method of contraception in the United States during 2006–2008 was the oral contraceptive pill, used by 10.7 million women, and the second leading method was female sterilization, which was used by 10.3 million women (The National Survey of Family Growth, 2010). The condom and the pill were the leading methods used by women under 30 years of age, while female sterilization and long term methods were the leading methods used by women 30 years and older (The National Survey of Family Growth, 2010).

Oral Contraceptives

Oral contraceptives are commonly known as birth control pills, or the “pill”, which is taken orally on a daily basis to prevent pregnancy. Oral contraceptives may contain both the hormones estrogen and progestin, while some pills contain progestin only. The hormones in the pill stops ovulation in women. This method also prevents pregnancy by thickening cervical mucus, making it difficult for sperm to enter the uterus. In theory, this could prevent pregnancy by keeping a fertilized egg from attaching to the uterus (Planned Parenthood Federation of America, 2010).

The pill and female sterilization have been the two leading contraceptive methods in the United States since 1982 (Guttmacher Institute, 2010b). There are approximately 2.9 million teens that use some type of contraception, and 54% of them use oral contraception (Mosher & Jones, 2010). Research shows that oral contraceptive methods are widely used by women who are in their teens and twenties, women who have no children, are cohabitating, and women with at least a college degree (Mosher & Jones, 2010). But as age increases, the use of oral contraceptives decreases. From 2006 to 2008, of women under the age of 20 years using contraception, 54% were currently using the pill, compared to only 11% of women age 40 years or older (The National Survey of Family Growth, 2010).

Oral contraceptives are about 92-99.7% effective as birth control. Combination pills are most effective when they are taken every day. Pills that are progestin-only must be taken at the same time every day in order to obtain the same effectiveness as the combination pill. This will keep the correct level of hormone in a woman’s body (Planned Parenthood Federation of America, 2010). Women who are on oral

contraceptives need to monitor their weight, and the medicines and supplements they take in order to maintain the effectiveness of the pill. For instance, St. John's Wort and certain antibiotics reduce the effectiveness of oral contraceptives theoretically by reducing the re-circulation of estrogens within the body, although there is little evidence to prove this theory (Dickinson, Altman, Nielsen, & Sterling, 2001).

The advantages of oral contraceptives include not having to worry about it interfering with having sexual intercourse, thereby helping women to feel more spontaneous (Planned Parenthood Federation of America, 2010). This method of birth control is easy and simple to use every day. The combination pill can help prevent acne, ovarian cancer, and ectopic pregnancy. Both combination and progestin-only pills can make periods lighter and protect against pelvic inflammatory disease.

Disadvantages of oral contraceptives include side effects such as nausea, breast tenderness, bleeding between periods, and a risk of forming blood clots. Side effects may become serious if the woman is older than 35 years, smokes, is diabetic, or overweight. Women should be aware of the hormones in the pill may also change a woman's sexual desire (Planned Parenthood Federation of America, 2010).

Depo-Provera

Depo-Provera is an injection of a progestin-only hormone that is long- acting and is a reversible type of birth control (American Pregnancy Association, 2008). The shot is taken every 11 to 13 weeks in order to prevent pregnancy. Depo-Provera contains progestin, which prevents ovulation. The shot also thickens mucus in the woman's cervix and potentially thins the lining of the uterus. In theory, this could further prevent

pregnancy by keeping a fertilized egg from attaching to the uterus (Planned Parenthood Federation of America, 2010).

Depo-Provera has been available in the United States since 1992, and has been used worldwide as a contraceptive method for over 30 years (Freeman, 2004). In a recent study of Depo-Provera users in the U.S., 33% were under the age of 19, 84% were African American women, and 74% were low income (Committee on Women, Population and the Environment, 2005).

The Depo-Provera shot is one of the most effective methods of birth control available in the United States. Depo-Provera has a failure rate of less than 1% when it is used correctly and consistently (American Pregnancy Association, 2008). If a woman does not use the shot as directed, or waits longer than 12 weeks, the failure rate increases to about 3 out of 100 women who will get pregnant each year.

There are advantages and disadvantages to the Depo-Provera shot. Similar to oral contraceptives, it is easy, convenient, and simple to use. Once a woman gets the shot, it is long lasting and very effective in preventing pregnancy. Unlike the pill, women do not have to worry about taking the method every day. It is a private form of birth control since there is no packaging or other evidence that might be embarrassing in some cultures (Planned Parenthood Federation of America, 2010). It is also an excellent choice for women who are breast feeding and helps prevent ovarian cancer and pelvic inflammatory disease (American Pregnancy Association, 2008).

There are some disadvantages to this form of birth control. Irregular bleeding is the most common side effect, especially in the first 6 to 12 months of use (Planned Parenthood Federation of America, 2010). Other side effects include changes in

weight, heavier periods, hair loss and spotting between periods. If a woman becomes pregnant while using Depo Provera, and continues her pregnancy, there may be an increased chance of the child being born prematurely. In order to receive the Depo-Provera shot, women must see a doctor and it requires a prescription. One major concern is that if taken for long periods of time, women can develop a loss of bone density, resulting in an increased risk of osteoporosis (Planned Parenthood Federation of America, 2010).

Intrauterine Device (IUD)

An intrauterine device is a T-shaped piece of flexible plastic that is placed inside the uterus. There are two types of IUDs sold in the United States. The Paraguard® IUD contains copper and can be effective for up to 12 years. The Mirena® IUD releases a small amount of progestin and can be effective for up to five years. Both types prevent fertilization by affecting the way sperm move, which prevents them from joining with the egg. IUDs also alter the lining of the uterus. While some people believe that IUDs prevent a fertilized egg from attaching to the lining of the uterus, existing evidence does not support this theory (Planned Parenthood Federation of America, 2010).

The likelihood of an unintended pregnancy is lowest (1% or less during the first year of use) among women protected by sterilization or an IUD (Guttmacher Institute, 2010b). The IUD is 98%-99% effective against unintended pregnancy. The proportion of women who use the IUD has increased substantially, from less than 1% in 1995, to 2% in 2002, and finally to 5.5% in 2006–2008 (Mosher & Jones, 2010). According to the CDC, the proportion of women who used IUDs as contraception increased from 2%

in 2002 to 8% in 2006–2008 among women with one child and from 3% to 11% among women with two children.

Use of the IUD has been controversial, with concerns about safety issues and debates about its method of action. The IUD was a popular birth control method in the United States during the 1970s. Around 1974, the CDC questioned the use of the Dalkon Shield®, an IUD marketed between 1970 and 1974. They found a number of complicated pregnancies that were associated with Dalkon Shield® users, compared with users of other IUDs (CDC, 2008). The discovery of the association between the Dalkon Shield® and the increased risk of pelvic inflammatory disease (PID) led the manufacturer to take the device off the market (CDC, 2008). Clinical research performed over the past 30 years provides evidence that could help resolve safety issues and misperceptions about using an IUD (Hubacher, 2002). Recent research studies and improvements have made the IUD more attractive in the United States, and it continues to be popular in many European countries such as Italy, Spain and Poland (Hubacher, 2002).

Over the last decade interest in the IUD has been slowly increasing again. There are many advantages to this method of birth control. An IUD can ease the burden of having to take a daily contraceptive like the pill or of scheduling a Depo-Provera shot. On average, menstrual flow is reduced by 90% when using the Mirena® IUD and for some women periods stop altogether (Planned Parenthood Federation of America, 2010). Women can breastfeed while using the IUD, and it is a great alternative to sterilization for women who may wish to become pregnant in the future (Planned Parenthood Federation of America, 2010).

However, women should not use an IUD if they have certain medical conditions, a sexually transmitted disease, or are not in a monogamous relationship. When using an IUD, women may experience heavy periods, cramping (especially with IUDs containing copper), backache, or spotting between periods (Planned Parenthood Federation of America, 2010). Some women may also experience mood changes, breast tenderness, and acne (American Pregnancy Association, 2008).

Factors that Effect Contraceptive Choice

Age

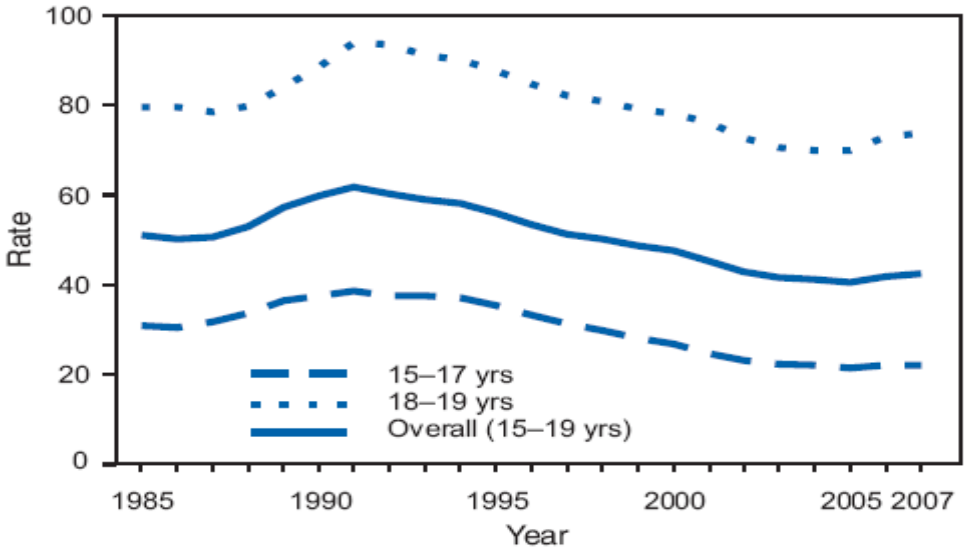
Many factors shape a woman's attitudes about the use of and the need for contraception, unintended pregnancy and sexual health. Age is one of the main factors associated with unintended pregnancy and contraceptive use. With age comes life experiences and knowledge that can help a woman make wise decisions about sexual health. However, past research has found that age, culture, lifestyle, and socioeconomic status may influence contraceptive use and method of choice among women of all age groups.

Adolescents

Preventing unintended pregnancies among teenagers has been debated in the public health sector for a long time. Over the years, researches have examined the reasons for the wide variation in teen birth rates and teenage pregnancy among five developed countries: Great Britain, Sweden, the United States, France and Canada. There is little difference in the age of first sexual activity among these countries, yet the U.S. teen pregnancy, birth, and abortion rates are considerably higher than in most other developed countries (Darroch, Singh, Frost, & the Study Team, 2001). Between

1992 through 1996, comparable data showed that Sweden had a greater portion of 18-19 year olds who were sexually active, followed by France and Great Brian which would indicate more potential exposure to pregnancy. However, the use of long-term methods of contraception (IUD, implants, or injectables) and condom use are the lowest in the U.S. compared to other developed countries (Darroch et al., 2001).

In Table 1, U.S. teen birth rates are shown fluctuating over the years. After reaching a peak in 1991, teen birth rates decreased 34% by 2005. In 2005, the birth rate for teens aged 15-19 years began to increase, rising by 5% by 2007 (CDC, 2009).



*Per 1,000 women for specified age group

Table 1. ***Birth Rates* for Teens Aged 15--19 Years, by Age Group --- United States, 1985—2007***. MMWR Weekly April 3, 2009 / 58(12); 313**.** Centers for Disease Control and Prevention. Date last reviewed: 4/2/2009

Women in all age groups may have unintended pregnancies, but some groups, such as teens, are at a greater risk. Adolescent decision making skills are inconsistent and imperfect which may lead them to engage in more risky behavior. Adolescents may also lack knowledge of, or access to contraceptives, as they may be frightened or too embarrassed to seek such information. Casey, Jones, and Hare (2008) studied the

adolescent brain and examined how developmental neural changes during adolescence supported their participation in more risky and impulsive behaviors. They found that certain parts of the brain during adolescence lack sufficient cognitive control during adolescence and rely more on feelings when trying to make a cautious decision. In other words, when faced with an important decision such as wearing a condom before intercourse, the adolescent may make that decision in the heat of the moment. The adolescent is aware of what the right choice is, but they are likely to go in the other direction, resulting in impulsive behavior (Casey, Jones, & Hare, 2008).

In 2006, 750,000 women under the age of 20 became pregnant (Guttmacher Institute, 2010a). The 2007 Youth Risk Behavioral Surveillance Survey from the Centers for Disease Control and Prevention gives a clear message about teen pregnancy, sexual behavior and contraceptive use: there is much more work that needs to be done in this area of prevention. In 2007, 48% of all high school students reported having sexual intercourse and more than one-third reported having sex within the last three months (YRBSS, 2007). The 2009 YRBSS reported no change in condom use during sexual activity since 2003, however, between 2007 and 2009 there was an increase in the use of birth control pills or the Depo-Provera shot. In 2009, among the 34.2% students who were sexually active, 61.1% of these students reported that either they or their partner had used a condom during last sexual intercourse, and 22.9% reported that either they or their partner had used birth control pills or Depo-Provera to prevent pregnancy before last intercourse (YRBSS, 2009). Condoms and oral contraceptives are only effective when they are used consistently and correctly before having sexual intercourse. One study analyzed which method was more effective in

preventing pregnancy in teens during their first intercourse. Parkes, Wight, Henderson, Stephenson, and Strange (2009) found that young teenage girls (15-16 years) who used only oral contraceptives during their first intercourse were more likely to become pregnant than those who reported using condoms only. The data showed reports of inconsistent use among young teenage girls, and how the lack of information and miscalculations could have contributed to the ineffective use of oral contraceptives. In this study, condoms were more accessible and easier to use as an effective method for young teens compared to oral contraceptives, which must be prescribed. Parkes et al. (2009) encouraged the use of dual methods to prevent unintended pregnancies and the spread of sexually transmitted diseases.

Compared to other developed countries, U.S. teenagers have greater difficulty in obtaining contraceptive services and have a larger portion of teens that are uninsured (Darroch et al., 2001). In the effort to make contraceptive methods easy to access for all teenagers, Great Britain, Sweden, France and Canada offer contraceptive services and supplies free or at a low cost. Unfortunately, contraception is still not entirely accepted as basic health care (Darroch et al., 2001).

Young Adults

Most studies have focused on the teenage population and failed to examine reasons for unintended pregnancies or lack of contraception use among college age students, or young adults aged 20-29 years (Bryant, 2009). Despite the number of public family planning clinics and new contraceptive methods, young adults are not fully protecting themselves from unintended pregnancies. While teens rely on their parents, peers and high school curricula to learn about contraception and safe sex practices,

research conducted by Kaye, Suellentrop and Sloup (2009) reported that young adults relied on other sources for this type of information. Kaye et al. (2009) reported on a nationally representative probability study conducted by The National Campaign to Prevent Teen and Unplanned Pregnancy and the Guttmacher Institute, which examined the behaviors and attitudes of 1,800 unmarried young adults toward contraception, pregnancy planning and related issues. In this study, unmarried young adults were more likely to get information about contraception from the media (35%) or a personal source (34%) than they were from a doctor or other professional source (Kaye, Suellentrop, & Sloup, 2009).

In some studies, while young adults believed that pregnancy should be planned and that contraception is important, their actions told a different story. Some research suggests that young adults think using contraception during intercourse is important. In The National Campaign to Prevent Teen and Unplanned Pregnancy /Guttmacher Institute study, 82% of young adults (aged 18-29 years) said they have used some form of contraception during intercourse. However, of the 50% of young adults who were in a current sexual relationship and not pregnant or trying to become pregnant, 19% did not use contraception at all in the past month, and around one-quarter used contraception inconsistently when they had sexual intercourse (Kaye et al., 2009).

According to the National Survey of Family Growth (2010) from 2006-2008, condoms, oral contraception, IUD, and the contraceptive vaginal ring (i.e., NuvaRing®) were the top four forms of contraceptive methods used to prevent unintended pregnancies in young adults. While condoms and oral contraceptives are well known to young adults, longer acting methods such as the intrauterine device (IUD) and Depo-

Provera were found to be less well known in some research studies (Kaye et al., 2009). As a result, lack of knowledge on how to use, or awareness of the variety of contraception, can contribute to the rates of unintended pregnancy.

Some research found that as relationships progress with today's young adults and the relationship is considered "stable", contraception is less likely to be used (Soler, Quadagno, Sly, Riehman, Eberstein, & Harrison, 2000). Sixteen focus groups were conducted with unmarried men and women between the ages of 20-28 years to study key issues and thoughts on contraceptive use (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). The study showed how confused and misinformed young adults were about pregnancy and contraception. Most of the participants thought that withdrawal was one of the effective forms of birth control. When the women participants discussed contraceptive use among the women participants, many of them were uncomfortable talking to their partners about using contraception which the researchers felt showed low negotiation skills. Some women expressed that it was a foreign concept to be married or living with the other parent of their child. The bottom line is there seems to be a real disconnect between the desire not to be pregnant and the actual behavior to prevent it in this age group (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008).

Older Women

Only a few studies have looked at unintended pregnancies and contraception use in older women, compared to teens and young adults. When observing the rates of divorce and separation, middle-aged women are more likely to go through relationship transitions, and may later initiate new sexual relationships (Sherman, Harvey, & Noell,

2005). Sherman, Harvey, and Noell (2005) analyzed the 1995 National Survey of Family Growth and found that the rates of unintended pregnancies among women aged 35-39 increased by 41%, and by 51% among women aged 40 and older.

Although fertility declines with advancing age as a woman approaches the menopause, some risk of pregnancy persists. Pregnancy can result in increased morbidity and mortality in older women. Older women are more likely to have pre-existing medical disorders such as diabetes mellitus or hypertension which can jeopardize the health of the mother and the child (Jolly, Sebire, Harris, Robinson, & Regan, 2000). Older women are also more likely to have complications in giving birth, and have a low birth weight baby due to poorer placental perfusion (Godfrey, Breier, & Cooper, 1999). For these reasons, it remains important to prevent unintended pregnancies in older women.

Older women tend to choose their contraceptive method based on their current lifestyle. Research shows that women 30 years or older used more long-term methods of contraception. From 2006 to 2008, female sterilization was the leading method used among those 30-44 years of age, and by age 40-44 years, 50% of this age group were also using this method (The National Survey of Family Growth, 2010).

A study that conducted telephone interviews to examine women's reasons for choosing to terminate an unintended pregnancy found that factors associated with this decision varied strongly according to the women's age (Sihvo, Bajos, Ducot, Kaminski, & the Cocon Group, 2003). Younger women decided to have an abortion mainly because of their student status and because they feared becoming a single parent, while women aged 25 to 34 years chose abortion because they had already reached

their desired number of children. Older women chose abortion especially when the pregnancy did not fit their work situation or when the relationship with their partner was unstable (Sihvo et al., 2003). Overall, women in the older age group still have the ability to conceive, and they need to make sure contraception is used if pregnancy is not a desired outcome.

Racial/Ethnic Differences in Contraceptive Use

Many factors can contribute to unintended pregnancies, such as women's choice in contraceptives, pattern of in contraceptive use and attitude toward pregnancy. These can be associated with a woman's demographic and socioeconomic background, religion, relationship status, and the health services provided by community clinics. The national study conducted by The Nation Campaign and the Guttmacher Institute also compared racial and ethnic differences in contraceptive use (Kaye et al., 2009). They found that 26% of young Hispanic adults (more than other racial/ethnic groups) feel that using contraception is morally wrong. The proportion of those who strongly agree that most of their friends think contraception is important was lowest among non-Hispanic black men and women (Kaye et al., 2009). People's attitudes or beliefs toward contraception can either help or hinder them in the prevention of unintended pregnancies.

Some studies indicate that the highest risk of contraceptive nonuse occurs among women who are most prone to the devastating effects of having an unintended pregnancy, i.e. those who are young, poor, and minorities (Bryant, 2009). In 2009, African American high school students had the highest rates of sexual intercourse before the age of 13 years (15.2%) and multiple sexual partners (28.6%), compared to

Hispanic and white students (CDC, 2009). Statistics show that 53% of Hispanic teens and 51% of African American teen girls will become pregnant at least once before they turn 20, compared to 19% of non-Hispanic white teen girls (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Kaye et al. (2009) also found that more African American young adults had an unintended pregnancy (50%) compared to 34% of Hispanic women and 26% of white women. The study found that minorities had much less knowledge about common contraceptive methods such as oral contraceptives and Depo-Provera compared to non-Hispanic white young adults (Kaye et al., 2009). These higher unintended pregnancy rates reflect the particular difficulties that many women in minority communities face in accessing high-quality contraceptive services, and in using their chosen method of birth control consistently and effectively over long periods of time (Kaye et al., 2009).

There are many social and cultural aspects within different ethnic groups that can influence their decisions and how they view methods of contraception. Research performed by Wyatt (2009) examined how historical and cultural influences can either enhance or hinder contraceptive use among African Americans. Many African Americans have family ties and kinship networks guided by spiritual and cultural values that include church groups, and folk remedies past down from generation to generation. According to Wyatt (2009), African American males participate in “role flexing”, where the role of masculinity, protector, and having sexual confidence are often displayed in relationships. Decision on contraceptive use among African American women can be influenced, or distorted, by appearing “unfeminine” and using direct confrontation about contraceptive use. When African Americans openly communicate about sexual

intercourse and disclose sensitive information, their cultural and religious values on modesty that is promoted by families, religious communities and social networks may be contradicted. Wyatt (2009) also found that there is also a “healthy paranoia” or suspicion of the intent of unknown persons until they demonstrate their honesty and trustworthiness within the African American community. This could contribute to some African Americans using health and reproductive services less than other racial/ethnic groups (Wyatt, 2009).

Research found several possible reasons for the low rate of contraceptive use among the Hispanic population. Unger and Molina (1998) examined perceived cultural barriers that could potentially affect contraceptive use within the Hispanic population. They found that many low-income Latina women who have traditional cultural values, and are less acculturated, desire large families and feel that the role of motherhood has high importance (Unger & Molina, 1998). In this male-dominated culture of machismo and familism beliefs, it may be difficult for Latina women to initiate, or insist on using contraception. Close social networks and religion (i.e. Catholicism) can play a role in delaying contraceptive use if this is not accepted in the community or against their religion (Unger & Molina, 1998). Other common perceived barriers in the Hispanic cultural are negotiation skills, language, perceived stigma in buying contraception and embarrassment (Unger & Molina, 1998).

In adolescents, twice as many white students (21%) as black (9%) and Hispanic (9%) students reported using birth control pills before the last time they had sexual intercourse (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Heavey, Moysich, Hyland, Druschel, and Sill (2008) found differences in contraceptive

use among racial groups before and after clinic visits that included a counseling session on contraceptives. In this study, out of the total number of participants, more African American teens preferred the injectable method over oral contraceptives compared to whites and Hispanics. One reason they chose this method was because injectables are undetectable by anyone. Hispanic adolescents remained considerably more likely to be nonusers of any form of contraception compared to white and African American adolescents (Heavey, Moysich, Hyland, Druschel, & Sill, 2008). This is consistent with the fact that Hispanic teen pregnancy did not decrease as quickly as the overall national rate in the 2006 National Vital Statistics Report (Hamilton, Martin, & Ventura, 2007; The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008).

When women are not properly informed about the pros and cons of contraceptives, their opinions are skewed toward the negative side because of information from unreliable sources. There could be potential cultural differences, or a language barrier that could prevent a woman from making an informed decision on her reproductive health (Kaye et al., 2009). In young adults, Hispanics have a low consistency rate of 38% in contraception use, and are less likely to be aware of different methods of birth control, compared to African Americans and Whites (Kaye et al., 2009).

Studies show that minorities are choosing more long-term or permanent methods of contraception, such as Depo Provera injections than non-Hispanic white women (Raine, Harper, Paukku, & Darney, 2002). Sterilization is also a frequent method used among black and Hispanic women, while white women more commonly choose the pill (Mosher & Jones, 2010). Also, older women choose more long term methods of contraception. An older woman may have a menstrual dysfunction or reproductive

physiological changes, and these factors would need consideration when making the choice of contraception. The research suggests that new strategies and interventions need to be addressed in order to improve contraceptive use in women. This could help protect women from unintended pregnancies.

Factors in Non-use of Contraception

Some research indicates that gaps between contraceptive use and nonuse were strongly associated with ambivalence about avoiding pregnancy. Kaye et al.(2009) found that young adults may underestimate the general likelihood of pregnancy from unprotected sex and the likelihood they themselves are fertile, which in turn may lead them to think they don't need to use contraception. Lack of current information, poor self-esteem, thoughts and belief in contraceptive myths are a recipe for more unintended pregnancies. When more than half of young adults say they turn to the media to learn about a new method of contraception, public health professionals have a problem (Kaye et al., 2009). Many are misinformed on the pros and cons of contraception, and the fear of side effects drives them away from effective methods. One survey showed that nearly half of young adults (46%) believe that IUDs can move around in a women's body (in reality the IUD remains in the uterus and rarely moves at all), and 40% of young adults believe that a women must undergo a surgical procedure in order to obtain an IUD, when actually there is no surgery involved (Kaye et al., 2009).

Religion, family, and cultural influences can play a role in unintended pregnancy and contraceptive use. One study found an alarming rate of young adults who believed getting pregnant was outside of their control. This suggests that not only do they have little confidence in contraception, but they also see pregnancy as part of a larger, ill-

defined set of influences well outside of basic biology and birth control technology (Kaye et al., 2009). African Americans (50%) and Hispanics (49%) in this study believed this more than Whites (34%). Minorities in this study also expressed distrust of drug companies, public health centers and the government about contraceptive methods. Around 40% of Hispanic and African Americans believed that the government and public health institutions use poor and minority people as “guinea pigs” to try out new birth control methods (Kaye et al., 2009). Although there is a history of mistrust that goes beyond this study, the study’s findings highlight how strong and persuasive these influences can be influencing contraceptive use in different racial and ethnic groups. Overall, public health professionals need to take into consideration every factor that may play a role in unintended pregnancy and contraceptive use when introducing an intervention program.

Significant disparities in the rate of unintended pregnancies exist between different socioeconomic, educational, ethnic, and racial groups in the United States. Women whose incomes exceed the poverty line, those with at least a high school education, and those who are white have lower unintended pregnancy rates than women who are poorer, are less-educated, or are black or Hispanic (Finer & Henshaw, 2006). Women who live in poverty have added risk factors, which may explain their higher levels of inadequate contraceptive use (Heavey et al., 2008). Poverty can affect access to needed or beneficial health care services, current information on contraceptives, and the ability to pay for their method of choice. Many women who are low-income, uninsured, young, African American and Hispanic rely more on public family planning clinics for health care (Duberstein, Frost, Sten, & Dailard, 2006). Many

of these women face obstacles attending these family planning clinics due to lack of transportation, child care, family support, or lack of money to pay for the visit. Lack of insurance also plays a part in the ability to pay for health care services. Without many of the state-funded family planning clinics that accept Medicaid or low-income families, many of these women would not be able to afford contraceptives or preventive health care services (Duberstein et al., 2006). Luckily, there are federal programs, such as Title X, that fund family planning clinics to serve low-income teens and young women. This program supports clinic infrastructure, outreach, education, training and counseling so young women can rely on affordable and confidential reproductive care (Gold & Alrich, 2008).

Chapter 3: Methods

Design

This study used a quantitative, retrospective, and descriptive design to examine the variation between racial groups and contraceptive methods chosen by young women served by Planned Parenthood of Central Ohio (PPCO), from January 1, 2009 through December 31, 2009. Administrative data provided by PPCO was also used to examine potential differences in contraception use by racial and ethnic group. This data showed all women who were scheduled for an appointment to receive, or be consulted on contraception within the stated timeframe from all three PPCO clinic locations. Contraceptive methods examined were oral contraceptives, condoms, Depo-Provera shot, IUD, other contraceptive methods and nonuse of any method. Contraceptive methods grouped in the category known as "other" included the Nuva Ring ®, sterilization, withdrawal and sponge and spermicidal products. Additionally, for women who had acquired an intrauterine device (IUD), a chart review was performed to determine length of use and problems and complications experienced. It was found that the use of IUDs remains small after reported problems which received a lot of attention in the past and this study wanted to analyze the actual number and type of problems in this population. Permission to conduct this study was obtained from the director of PPCO and IRB approval was obtained from Wright State University (WSU).

Sample/ Setting

Within Planned Parenthood of Central Ohio, there are a total of five clinics which included Franklin and other surrounding counties. In this study, the population sample included all women who received contraception between January 1, 2009 and

December 30, 2009 from only three Planned Parenthood of Central Ohio clinics in Columbus, Franklin County, Ohio: North Campus, Franklinton and East Health Center. Women who did not request contraception were excluded from the analysis. The racial/ethnic classification consisted of African American, Caucasian, and Hispanic women.

With these specific requirements, a total of 24,370 women were scheduled for an appointment to receive, or be consulted on contraception were included in the study to analyze the variations between the methods chosen. For the chart review, there were a total of 548 women who received an IUD in 2009. From this total, there were 279 charts available to be pulled from PPCO on women who received an IUD in 2009. From this available group of charts, 11 women identified themselves as a race/ethnic group other than African American, Caucasian, or Hispanic (ex. Asian, Native American, etc) and three women did not identify their race or ethnicity. These 14 charts were excluded from the analysis, leaving a total of 265 charts for review.

Data Collection

PPCO provided a summary of the data in administrative reports from each clinic which included the clients' race/ethnicity and choice of contraceptive methods by age group. These age groups consisted of clients aged 12-14 years, 15-19 years, 20-24 years, 25-29 years, and 30-60 years. Contraceptive methods were classified for the purpose of this study as oral contraceptives, condoms, Depo-Provera shot, IUD, other and nonuse. No identifiable personal information was included in the reports. As an added safety measure, the report was handed to the primary investigator and collected at the end of each visit.

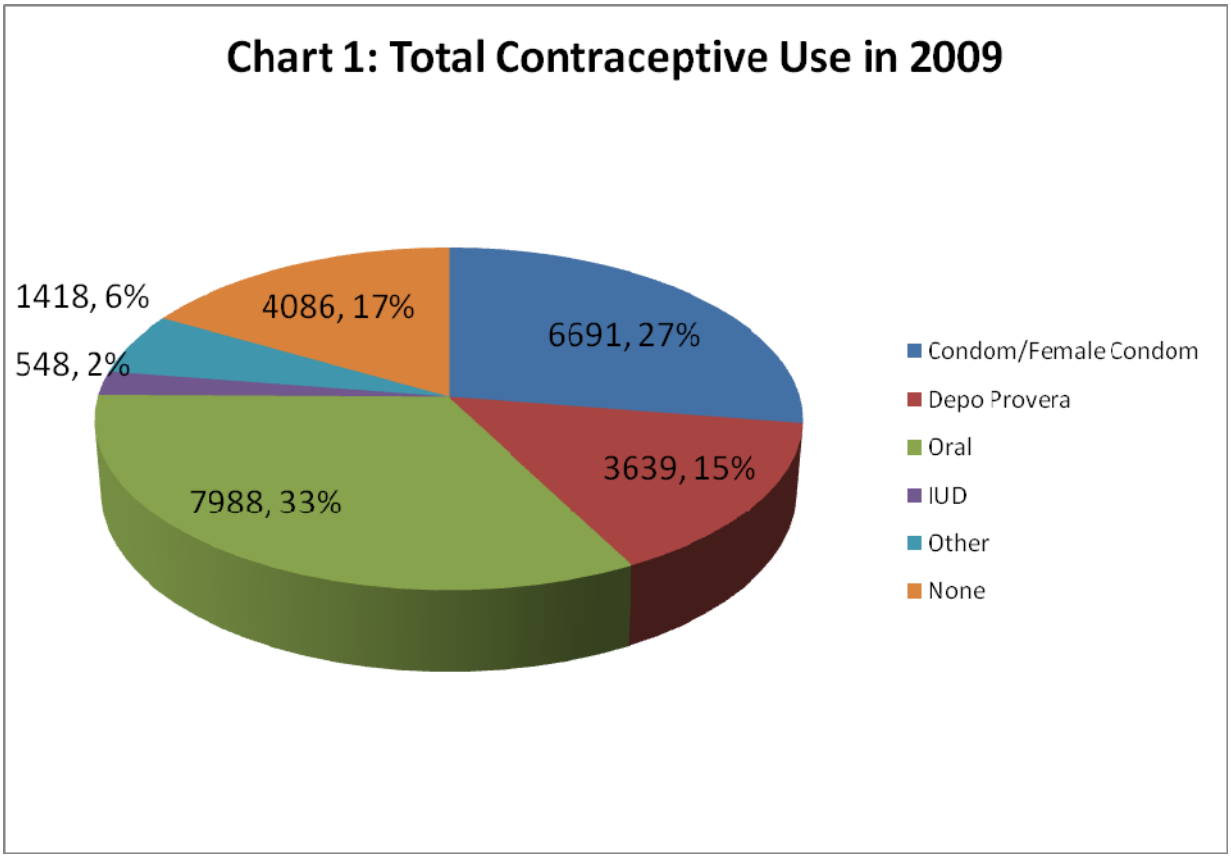
To further investigate potential problems and complications experienced by IUD users, a chart review was conducted. The researcher extracted information from medical charts of women who was identified as having an IUD. In the presence of a PPCO employee, the charts were pulled, examined and replaced. Identifiable personal information was accessible to the researcher, but not collected from the chart. Information collected included whether the women used a contraceptive method in the past before choosing to use an IUD, the date of implantation and the length of time between the date of implantation and removal date was observed. The type of IUD used (Mirena® and Paraguard®) and any documented problems were also included in data collection.

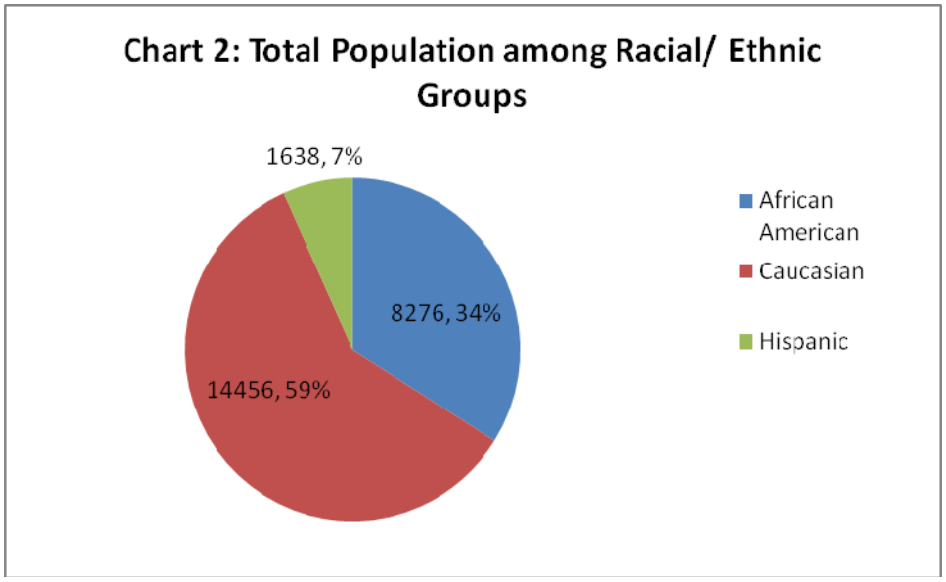
Data Analysis Technique

The researcher used java-based mathematical software from the MathBeans Project sponsored by Hobart and William Smith Colleges (Eck, Mitchell, & Ryan, 2001) to perform a chi-squared analysis for all categorical variables. Categorical data such as race and type of contraceptive methods were compared in each group using chi-square. The researcher used this analysis to test the association between each group and determine if the null hypothesis is true or false, with a predetermined alpha level of significance ($p < .05$).

Chapter 4: Results

The number and percentage of women from all three PPCO clinics who used contraception are displayed in chart 1. For the total sample population, oral contraceptives were the most widely used (33%) out of six contraceptive groups, followed by condoms (27%), nonuse (17%), Depo Provera injections (15%), other methods (6%) and IUD use (2%). Chart 2 displays three racial/ethnic groups analyzed in the study, in which 59% of the sample were Caucasian, 34% were African American, and 7% were Hispanic.





Contraceptive use varied among racial and ethnic groups in the three PPCO clinics. In charts 3, 4 and 5 different rates of contraceptives used by the three racial/ethnic groups are shown in the total population. An average of 33% of Hispanic women and 32% of African American women used condoms compared to 25% of Caucasian women. Around 24% of African American women received Depo Provera injections compared to 12% of Hispanic and 11% of Caucasian women. Caucasian women had a higher percentage of oral contraceptive use (42%) compared to Hispanic (21%) and African American women (18%). IUDs were used least frequently among all three racial/ethnic groups. However, a higher percentage of Hispanic women (4%) used IUDs compared to that of African American (3%) and Caucasian women (1%). In addition, condom use was one of the top two contraceptive methods used among all three racial/ethnic groups.

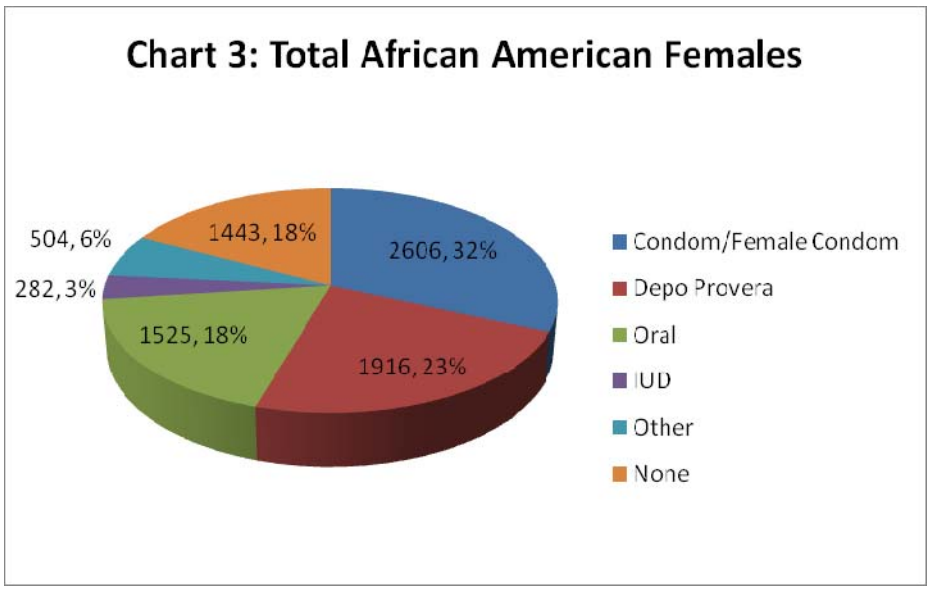


Chart 3: Total African American Females
504, 6%
1443, 18%
2606, 32%
282, 3%
1525, 18%
1916, 23%
Condom/Female Condom
Depo Provera
Oral
IUD
Other
None

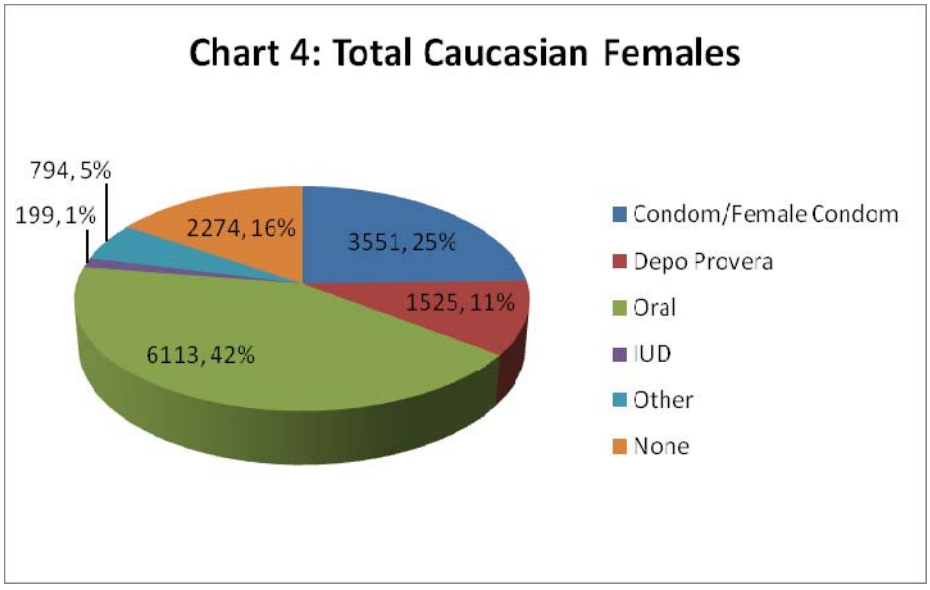
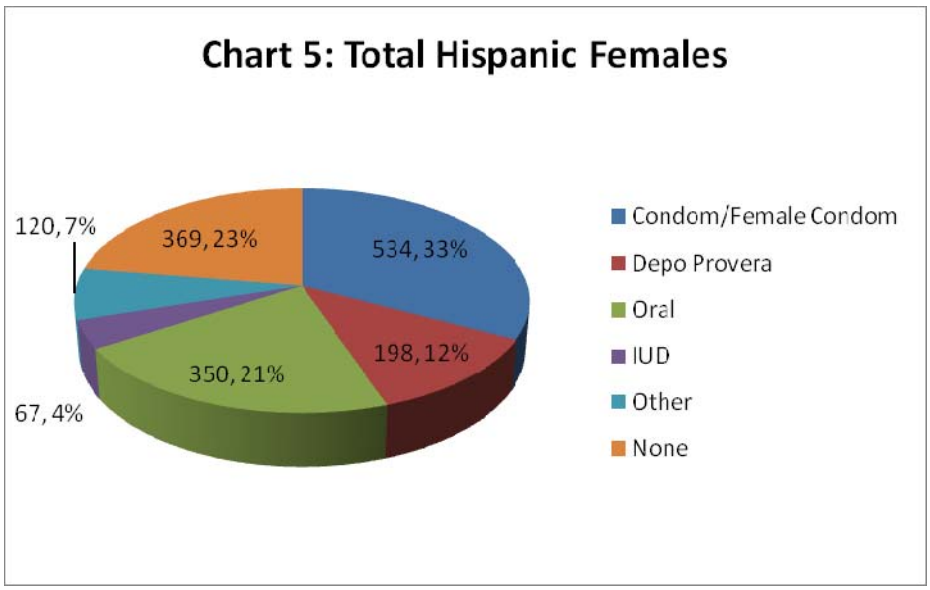
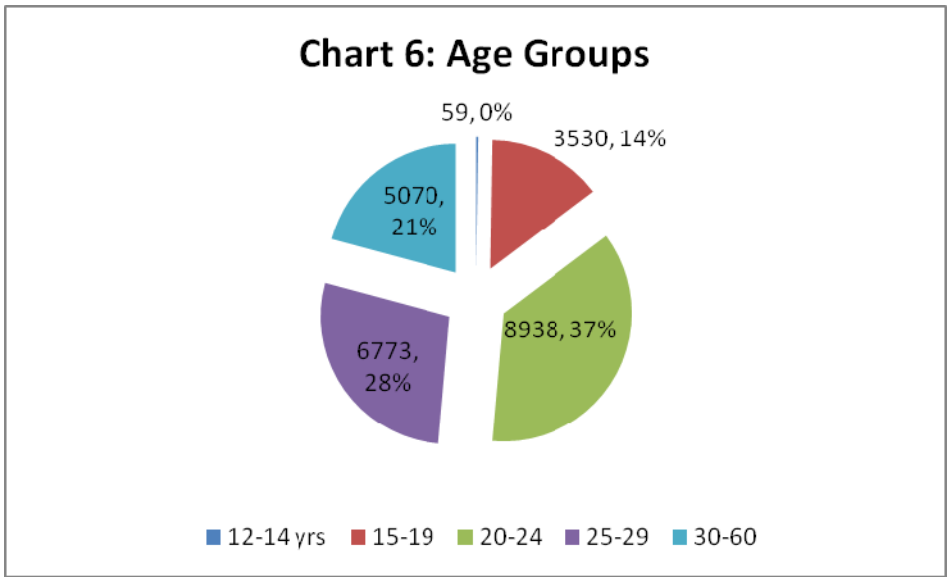


Chart 4: Total Caucasian Females
794, 5%
199, 1%
2274, 16%
3551, 25%
1525, 11%
6113, 42%
Condom/Female Condom
Depo Provera
Oral
IUD
Other
None



A woman's age can also play a role in contraceptive use and their chose in methods. Table 2 summarizes how contraceptive use varied by each age group. Women between ages 20-24 years and 25-29 years both had the highest percentages of oral contraceptive use (38%). Condom use found in the age groups, 15-19 and 30-60 years both had an average of 29%. The youngest age group of 12-14 years had the lowest sample of 59 women, but they had the highest percentage of Depo Provera shots (30%) in 2009. According to chart 6, women between ages 20-24 years made up the largest percentage of clinic patients with 37%, compared to ages 12-14 years, having the lowest percentage in 2009. However, oral contraceptives remained the most chosen birth control methods with all of the age groups.

Table 2: Contraceptive Use by Age							
	Condom/F Condom	Depo Provera	Oral	IUD	Other	None	Total
12-14 yr	14	18	11	0	0	16	59
15-19 yr	1028	761	704	7	149	881	3530
20-24 yr	2411	1089	3364	125	459	1490	8938
25-29 yr	1764	813	2540	207	470	979	6773
30-60 yr	1474	958	1369	209	340	720	5070
Total	6691	3639	7988	548	1418	4086	24370



A chi-square analysis was performed on the total number of women who used contraception during 2009. A chi-square probability of p< .05 was used as justification for rejecting the null hypothesis. The null hypothesis was determined based on the previous research question:

Ho: no differences among racial/ethnic groups and the type of contraceptives chosen by young women served by PPCO

Ha: the null hypothesis is false

Table 3 summarizes results from the chi-square analysis. The researcher calculated the chi square statistic (x^2 = 1840), the predetermined alpha level of significance (0.05), and the degrees of freedom (df =10) gave a probability of 0.0005. The results suggest that Caucasian women were more likely than African American women to use oral contraceptives, African Americans were more likely than Caucasians to use Depo Provera, and blacks and Hispanics were more likely than whites to use an IUD. Hispanic women also showed higher rates in nonuse of contraceptives during 2009.

Table 3. Chi-Square Analysis on the total number of women who used contraception during 2009

	Observed/Expected	Black	White	Hispanic
Condom/Female Condom	o	2606	3551	534
	e	2272.2	3969	449.7
Depo Provera	o	1916	1525	198
	e	1235.8	2158.6	244.6
Oral	o	1525	6113	350
	e	2712.7	4738.4	536.9
IUD	o	282	199	67
	e	186.1	325.1	36.8
Other	o	504	794	120
	e	481.5	841.1	95.3
None	o	1443	2274	369
	e	1387.6	2423.8	274.6

(O-E)	(O-E)^2	(O-E)^2/E	=	Chi-square
chi-square = 0.184E+04 degrees of freedom = 10 probability = 0.0005		1840.0		

Eck, Mitchell, & Ryan, 2001. Java Components for Mathematics Version 1.0. Department of Mathematics and Computer Science, Hobart and William Smith Colleges. National Science Foundation.
http://math.hws.edu/javamath/ryan/ChiSquare.html

Of the 548 women who received an IUD in 2009, there were 279 charts available to be examined. From this available group of charts, 11 women identified themselves as a race/ethnic group other than African American, Caucasian, or Hispanic (ex. Asian, Native American, etc) and three women did not identify their race or ethnicity. These 14 charts were excluded from the analysis, leaving a total of 265 charts for review. The age range varied between 15- 50 years old. Information collected included whether the women used a contraceptive method in the past before choosing to use an IUD, the date of implantation and the length of time between the date of implantation and removal date was observed.

Table 4 summarizes the results of the chart review for women who received an IUD in 2009. It displays the type of IUD used, contraceptive methods chosen in the past, documented problems, and if the IUD was removed, whether there were problems reported. There was some overlap of contraceptive methods used. Some women reported use of more than one method over the years. Overall, a higher percentage of women reported use of oral contraceptives (35%) and condoms (23%) compared to the Depo Provera shot (11%) and the Nuva Ring ® (3%). Twenty-two percent of the sample reported no contraceptive use in the past.

This study further investigated the length of use and problems and complications experienced by IUD users. The IUD brand Mirena ® was chosen by 83% of the sample compared to 17% choosing Paraguard ®. Each brand of IUD is effective for different periods of time. The IUD brand Mirena ® is effective for approximately five years and, the Paraguard ® is effective for twelve years. This study also analyzed the actual number and type of problems in this population. Approximately 9.9% of the sample had

the IUD removed for complications such as excess bleeding, cramping, extreme pain, while 2.2% had it removed for other reasons such as family planning. The shortest length of time between insertion and removal was two days, and the longest was one year and four months among the women who reported a complication. The average length of use was roughly for four to five months depending on the health issue.

Table 4. PPCO Chart Review			
Race/Ethnicity			
African American	85	32%	
Hispanic	51	19%	
Caucasian	129	49%	
*Other/ not identified**	14		
	279	265	
Age			
15-19	17	6%	
20-24	91	34%	
25-29	85	32%	
30-34	42	16%	
35-39	18	7%	
40-44	9	3%	
45-50	3	1%	
	265		
Past Birth Control			
Pill	112	35%	
Condoms	74	23%	
Depo Provera	34	11%	
IUD	11	3%	
NuvaRing	8	3%	
Other	9	3%	
None	69	22%	
	317		
		M*	P*
Removed/Problems	25	20	5
Removed/No Problems	6	5	1
	31	25	6

Mirena	221		
Paraguard	44		
	265		
Total Problems Documented		M*	P*
No	209		
Yes	56	47	9
	265		

***M, Mirena and P, Paraguard**

******Not used in study***

Chapter 5: Discussion

The goal of this study was to evaluate contraceptive use of PPCO's client population in order to better educate them on effective contraceptive methods, and to address their reproductive needs and concerns to help prevent unintended pregnancy. There were three research questions that guided the study along the way:

- Are there differences among racial/ethnic groups in the type of contraceptives chosen by women served by Planned Parenthood of Central Ohio?
- What was the extent of contraceptive use in the past by each racial/ethnic group?
- If an IUD was used, how long was the method used, and what if any complications occurred as a result?

As shown in the analysis, there were significant differences among racial/ethnic groups in the type of contraceptive methods chosen by women served by Planned Parenthood of Central Ohio. The results found that Caucasian women were more likely than African American women to use oral contraceptives. African Americans were more likely than Caucasians to use Depo Provera. African Americans and Hispanics were more likely than whites to use an IUD. Hispanic women showed higher rates in nonuse of contraceptives during 2009. The probability was smaller ($p= 0.0005$) than the predetermined alpha level of 0.05, so in null hypothesis was rejected.

The results of this study are similar to previous studies in contraceptive use and nonuse. In this sample population, the two minority groups chose more long-term methods such as Depo Provera injections and IUDs than Caucasian women. These

were similar to results found in a study by Raine et al. (2002). While Hispanic women were represented in fewer numbers in the sample population, like in previous studies, they were the group with the highest percentage of nonuse of contraceptives (23%) compared to Caucasian (16%) and African American women (18%) (Heavey et al., 2008). While Caucasian women consistently chose oral contraceptives more often than African American and Hispanic women, oral contraceptives remained the most widely used method among racial/ethnic and age groups as also found by Mosher and Jones (2010).

Based on previous studies, age plays a significant role in choosing a contraceptive method (Sihvo et al., 2003). The results of this study show as age increased; the percentage of IUD use increased from 0% to 4%. Similar to findings of the 2009 YRBSS, there was greater use of Depo Provera injections in the younger age groups. Depo Provera injections slowly declined among ages 20-24 and 25-29 years, and then percentages began to rise in women 30 years and above. Unfortunately, as age declined, so did the use of contraceptive methods. The percentage of nonuse increased in the younger age groups who are most vulnerable to unintended pregnancy (Casey et al., 2008). Of the 12-14 year old group, 27% chose not to use contraception by the end of their clinic appointment compared to 14% of nonuse among women between 25-29 years.

The chart review for IUD users looked at the length of use, along with problems and complications experienced from the least common, but very effective method of contraception. Overall, the study found that the past contraceptive choices of IUD users mirrored the frequencies in which oral contraceptives and condoms were the top

methods among racial and age groups. Only about 20% of IUD users had concerns or complications documented in their charts, and fewer than 10% had to have the IUD removed because of complications. Even though the study did not do a chart review to determine the percentage of adverse effects reported due to other contraceptive measures, it is possible that this represents a higher percentage of complications associated with the IUD than other methods. However, due to the ease of use and effectiveness of the IUD, it remains to have a positive future in preventing unintended pregnancies.

Measuring the rate of unintended pregnancy, contraceptive use, and nonuse should be important to health care professionals. In spite of its frequency and increasing cost, unintended pregnancy has received less attention in both research and the expansion of clinical and preventative care strategies than other similar important health issues (Taylor, Levi, & Simmonds, 2010). Unintended pregnancies are linked to behaviors that can potentially affect the health of the mother and baby such as delayed prenatal care and inadequate weight gain. The U.S. teen pregnancy, birth, and abortion rates are considerably higher than in most other developed countries (Darroch et al., 2001). According to the 2009 YRBSS, there was no change in condom use during sexual activity since 2003. Despite the number of new contraceptive methods, health care resources, and public family planning clinics, young adults are not fully protecting themselves from unintended pregnancies. Minority groups continue to have higher rates of unintended pregnancies indicating a major health disparity in this area of reproductive health (Taylor et al., 2010). In addition, among the total sample of women who were scheduled to receive contraception in this study, 17% did not choose a

method by the end of their clinic appointment, which indicates there is still work to be done in this area of public health.

This study, along with previous studies, shows the greatest percentage of contraceptive use was both oral and condoms. These are good methods, but they have the disadvantage of being subject to failure if not used correctly and consistently. If many women are choosing these methods, health professionals need to know how to carefully explain the necessity of strictly adhering to guidelines for appropriate use. Oral contraceptives, Depo Provera, the IUD, and other methods are highly effective but do not protect against STDs and HIV. Health care professionals may wish to counsel women on using dual methods, such as an IUD and condoms if they are not in a monogamous relationship. This study revealed that adverse effects, such as excess pain, rarely necessitated removal of the IUD. Health care providers may want to reassure women that adverse effects are usually fairly mild and transient, which should be weighed against the convenience and effectiveness of the IUD.

As mentioned in the literature, there are many factors that contribute to unintended pregnancy. Addressing the issues that influence contraceptive use is a start. It is important to concentrate on health care disparities within certain groups, such as teens, minority groups and women who are poor (Bryant, 2009) that widen the gaps in unintended pregnancy. By providing education, contraceptive counseling, increased availability, lower cost barriers, and addressing misconceptions on contraceptive use, health care professionals have an opportunity to achieve some national health objectives.

Socioeconomic barriers such as access, transportation, or environmental factors can have an impact on contraceptive use, in which could lead to unintended pregnancy (Heavey et al., 2008). Community clinics can get involved by providing available hours, up-to-date information on contraceptive methods, counseling, offer a youth-friendly environment , and encourage parental involvement (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008).

In this culturally diverse society, health care professionals should recognize how social and cultural aspects are also important factors that can affect contraceptive use and unintended pregnancy. As African Americans and Hispanic population continue to be vulnerable to unintended pregnancy, the public health system should be aware of their differences and tackle perceived barriers that may hinder preventative services (Soler et al., 2000). By incorporating a bilingual staff, cultural diversity awareness and interpreting services, community health clinics can provide needed health care services for diverse groups (Heavey et al., 2008).

Taylor, Levi, and Simmonds (2010) suggest that health care professionals advocate for more preventive care, and incorporate sexual health with primary care. They believe that primary care clinicians such as nurse practitioners, physician assistants and physicians should be properly trained to address issues of behavior that can contribute to unintended pregnancy and low contraceptive use. This would include family planning, negotiation skills with partners and education on reproductive health. This type of health care service would be a great impact to public health by empowering women in other aspects of their lives, including education, psychosocial support, and safe housing (Taylor et al, 2010). Health care professionals should understand the

prevention of unintended pregnancy at all three levels of preventative care (primary, secondary and tertiary). By constructing a coordinating system of prevention-focused and evidence-based strategies for reproductive health issues, health care professionals and primary care providers can avoid a system-wide failure to successfully provide preventative services for women who are at risk of unintended pregnancy (Taylor et al., 2010).

Limitations

Past contraceptive use was assessed by review of charts containing the client's self report of past use. One limitation of this study is possible memory bias by clients trying to recall contraceptive methods used in the past. The sample population was selected from a large urban city. The information presented may not reflect populations in other parts of the country. Also, this study did not examine complications and adverse effects reported with contraceptive measures other than the IUD. The use of IUDs remained small after reported problems which received a lot of attention in the past and this study wanted to analyze the actual number and type of problems in this population. This did not allow the researcher to directly compare the percentage of women reporting complications, or having to discontinue another method.

References

American Pregnancy Association. (2008). Depo-Provera*: Quarterly Injection*. Last updated: July, 2008. Retrieved from http://www.americanpregnancy.org/preventingpregnancy/depoprovera.html.

Brace, A. M., Hall, M. & Hunt, B. P. (2008). Social, economic and health costs of unintended teen pregnancy: The Circle of Care Intervention Program in Troup County, Georgia. *Journal of the Georgia Public Health Association, 1*(1), 33-46.

Bryant, K. D. (2009). Contraceptive use and attitudes among female college students. *The ABNF Journal, 20*(1), 12-16.

Casey, B. J., Jones, R. M., & Hare, T. A. (2008). The Adolescent Brain. *Annals of the New York Academy of Sciences, 1124,* 111-126.

Centers for Disease Control and Prevention (2009). Abortion Surveillance, United States, 2006, MMWR Surveillance Summaries.*Division of Reproductive Health National Center for Chronic Disease Prevention and Health Promotion, CDC.* November 27, 2009 /58(SS08); 1-35. Retrieved from: http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5808a1.htm?s_cid=ss5808a1_e.

Centers for Disease Control and Prevention. (2008). Fact sheet: Update on intrauterine devices (IUD) and pelvic infection. *Division of Reproductive Health.* Page last modified: 8/25/06; Page last reviewed: 12/4/08. Retrieved from*: http://www.cdc.gov/reproductivehealth/UnintendedPregnancy/IUD_factsheet.htm*.

Centers for Disease Control and Prevention. (2009). Birth Rates for Teens Aged 15--19 Years, by Age Group United States, 1985-2007. *MMWR Weekly April 3, 2009* /

58(12), 313. Date last reviewed: 4/2/2009. Retrieved from: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5812a5.htm.

Centers for Disease Control Youth Risk Behavioral Surveillance Survey (2007). Trends in the Prevalence of Sexual Behaviors, National YRBSS: 1991-2007**.** *National Center for Chronic Disease Prevention and Health Promotion, Division of Adolescent and School Health.* Centers for Disease Control and Prevention. Page last modified: February 17, 2009. Retrieved from: http://gcapponline.org/pdf/YouthSexualBehaviorTrends2007.pdf.

Centers for Disease Control Youth Risk Behavioral Surveillance Survey (2009). Trends in the Prevalence of Sexual Behaviors, National YRBSS: 1991-2009**.** *National Center for Chronic Disease Prevention and Health Promotion, Division of Adolescent and School Health.* Centers for Disease Control and Prevention. Page last modified: June 03, 2010. Retrieved from: http://www.cdc.gov/HealthyYouth/yrbs/pdf/us_sexual_trend_yrbs.pdf.

Committee on Women, Population and the Environment (CWPE). (2005). Depo-Provera Fact Sheet. *Women's Health & Reproductive Technologies.* Retrieved from: http://www.cwpe.org/node/185?KeepThis=true&TB_iframe=true&height=700&width=900.

Cubbin C, Braveman P. A., Marchi K. S., Chavez, G. F., Santelli J. S., & Gilbert B. J. (2002). Socioeconomic and racial/ethnic disparities in unintended pregnancy among postpartum women in California. *Maternal and Child Health Journal, 6*(4), 237–246.

D'Angelo, D. V., Gilbert, B. C., Rochat, R. W., Santelli, J. S., & Herold, J. M. (2002). Differences between mistimed and unwanted pregnancies among women who have live births. *Perspectives on Sexual and Reproductive Health, 36*(5), 192-197.

D'Angelo, D. V., Gilbert , B. C., Rochat R. W., Santelli J. S., & Herold J. M. (2004). Differences between mistimed and unwanted pregnancies among women who have live births. *Perspectives on Sexual and Reproductive Health, 36*(5), 192–197.

Darroch, J. E., Singh, S., Frost, J. J., & the Study Team. (2001). Differences in teenage pregnancy rates among five developed countries: The roles of sexual activity and contraceptive use. *Family Planning Perspectives, 33*(6), 244-250 & 281.

Dickinson, B. D, Altman, R. D., Nielsen, N. H., & Sterling, M. L. (2001). Drug interactions between oral contraceptives and antibiotics. *Obstetrics and Gynecology, 98*(5) Part 1, 853-860.

Duberstein, L., Frost, J. J., Sten, C., & Dailard, C. (2006). Provision of contraception and related services by publicly funded family planning clinics, 2003. *Perspectives on Sexual and Reproductive Health, 38*(3), 139–147.

Eck, D., Mitchell, K., & Ryan, J. (2001). Java Components for Mathematics Version 1.0. *Department of Mathematics and Computer Science, Hobart and William Smith Colleges.* National Science Foundation. Retrieved from: http://math.hws.edu/javamath/ryan/ChiSquare.html.

Finer, L. W. & Henshaw, S. K. (2006). Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Perspectives of Sexual and Reproductive Health, 38,* 90-96.

Freeman, S. (2004). Nondaily Hormonal Contraception: Considerations in contraception choice and patient counseling. *Clinical Practice*, *16*(6), 226-238.

Frost, J. J, Darroch, J. E., & Remez, L. (2008). Improving contraceptive use in the United States, In Brief. *New York: Guttmacher Institute*, *April 2008, No.1*, 1-8.

Godfrey, K., Breier, B. & Cooper, C. (1999). Constraint of the materno–placental supply of nutrients: causes and consequence**.** In O'Brien, S., Wheeler, T., Barker, D. (eds), *Fetal Programming Influences on Development and Diseases in Later Life. RCOG Press: London, UK,* pp. 283–298.

Gold, R.B. & Alrich, C. (2008). Role of Medicaid family planning waivers and Title X in enhancing access to preconception care. The Guttmacher Institute, Washington, DC. *Women's Health Issues* (18S), S47-S51.

Guttmacher Institute (2010a). U.S. teenage pregnancies, births and abortions: *National and State Trends and Trends by Race and Ethnicity***.** Retrieved from: http://www.guttmacher.org/pubs/USTPtrends.pdf.

Guttmacher Institute (2010b*). Facts on contraceptive use in the United States, In Brief***.** *New York.* Retrieved from: http://www.guttmacher.org/pubs/fb_contr_use.html.

Hamilton, B.E., Martin, J.A., & Ventura, S.J. (2007). Births: Preliminary data for 2006. *National Vital Statistics Reports, 56*(7). National Center for Health Statistics*:* Hyattsville, MD.

Heavey, E. J., Moysich, K. B., Hyland, A., Druschel, C. M. & Sill, M. W. (2008). Differences in contraceptive choice among female adolescents at a state-funded family planning clinic. American College of Nurse-Midwives*. Journal of Midwifery & Women's Health, 53*(1), 45-52.

Kaiser Family Foundation. (2006). Pregnancy and Childbirth: Unintended pregnancy rate increasing among poorer women, decreasing among more affluent; Overall contraception use down, report says. *Daily Reports, The Comprehensive Source: Kaiser Daily Women's Health Policy.* Retrieved from: http://www.kaisernetwork.org/daily_reports/rep_index.cfm?hint=2&DR_ID=37050.

Hoffman, S.D. (2008). Kids having kids: economic costs and social consequences of teen pregnancy. *The Urban Institute Press, 2008*. *Preventing Teen Pregnancy: An Update in 2009. Adolescent Reproductive Health: About Teen Pregnancy.* Centers for Disease Control and Prevention, Division of Reproductive Health. Page last modified: August 10, 2009. Retrieved from: http://www.thenationalcampaign.org/resources/pdf/consequences.pdf.

Hubacher,D. (2002). The checkered history and bright future of Intrauterine Contraception in the United States, Viewpoint. The Guttmacher Institute. *Perspectives on Sexual and Reproductive Health, 34*(2), 98-103. Retrieved from: http://www.guttmacher.org/pubs/journals/3409802.html.

Jolly, M., Sebire, N., Harris, J., Robinson, S. & Regan, L. (2000). The risks associated with pregnancy in women aged 35 years or older**.** *Human Reproduction, 15*(11), 2433-2437.

Kaye, K., Suellentrop, K., & Sloup, C. (2009). The Fog Zone: How misperceptions, magical thinking, and ambivalence put young adults at risk for unintended pregnancy. *The National Campaign to Prevent Teen and Unplanned Pregnancy*, 1-80. The National Campaign: Washington, DC.

Kendall, C., Afable-Munsuz, A., Abery, A., Schmidt, N., & Santinelli, J. (2005). Understanding pregnancy in a population of inner-city women in New Orleans: Results of qualitative research. *Social Science & Medicine*, *60*(2), 297-311.

Kost, K., Landry, D. J., & Darroch, J. E. (1998). Predicting maternal behaviors during pregnancy: Does intention status matter? *Family Planning Perspectives, 30*(2), 79-88.

Logan, C., Holcombe, E., Manlove, J. & Ryan, S. (2007). *The consequences of unintended childbearing: A white paper.* Washington, DC: Child Trends & The National Campaign to Prevent Teen and Unplanned Pregnancy.

Mosher, W. D. & Jones, J. (2010). Use of contraception in the United States: 1982–2008. *Centers for Disease Control and Prevention: Vital and Health Statistics*, 2010, Series 23, No. 29.

National Campaign to Prevent Teen and Unplanned Pregnancy, The. (2008, May). An Overview of Latina Teen Pregnancy & Birth Rates. Retrieved from: http://www.thenationalcampaign.org/espanol/PDF/latino_overview.pdf.

National Campaign to Prevent Teen and Unplanned Pregnancy, The. (2008)***.*** *Briefly….What 20-Somethings are saying about pregnancy, sex, and childbearing: Finding from focus groups. Pg 1-3.* Retrieved from: http://www.thenationalcampaign.org/resources/pdf/Briefly_20_Somethings_Focus_Group_Summary.pdf.

National Campaign to Prevent Teen and Unplanned Pregnancy, The. (2008). *Policy Brief: Racial and ethnic disparities in teen pregnancy.* Retrieved from:

http://www.thenationalcampaign.org/resources/pdf/Briefly_PolicyBrief_RacialEthnicDisparities.pdf.

National Campaign to Prevent Teen and Unplanned Pregnancy, The. (2008). Fast Fact. Teen sexual behaviors and contraceptive use: *Data from the Youth Risk Behaviors Survey, 2007*. Retrieved from: http://www.thenationalcampaign.org/resources/pdf/fast-facts-yrbs-2007.pdf.

National Survey of Family Growth, The. (2010). Use of contraception in the United States: 1982-2008. *Centers for Disease Control and Prevention: Vital and Health Statistics, Series 23, Number 29*. Retrieved from: http://www.cdc.gov/nchs/data/series/sr_23/sr23_029.pdf.

Parkes, A., Wight, D., Henderson, M., Stephenson, J., & Strange, V. (2009). Contraceptive method at first sexual intercourse and subsequent pregnancy risk: Findings from a Secondary Analysis of 16- Year-old girls from the RIPPLE and SHARE Studies. *Journal of Adolescent Health, 44*(1), 55-63.

Planned Parenthood Federation of America. (2010). Birth Control. *Health Topics*. Retrieved from: http://www.plannedparenthood.org/health-topics/birth-control-4211.htm.

Ragupathy, S. (1997). Unwanted pregnancies and preventive health care use in Thailand. *Population Research and Policy Review; 16*(6), 579-595.

Raine, T., Harper, C., Paukku, M. & Darney, P. (2002). Race, adolescent contraceptive choice, and pregnancy at presentation to a family planning clinic. *The American College of Obstetricians and Gynecologists, 99*(2), 241-247.

Sable, M. R., & Wilkinson, D. S. (1998). Pregnancy intentions, pregnancy attitudes, and the use of prenatal care in Missouri. *Maternal and Child Health Journal, 2*(3), 155-165.

Santelli, J. S., Speizer, I. S., Avery, A., & Kendall, C. (2006). An exploration of the dimensions of pregnancy intentions among women choosing to terminate pregnancy or to initiate prenatal care in New Orleans, Louisiana**.** *American Journal of Public Health, Research and Practice*, *96*(11), 2009-2015.

Sherman, C. A., Harvey, S. M., & Noell J. (2005). "Are they still having sex?" STI's and unintended pregnancy among mid-life women*. Journal of Women Aging, 17*(3), 41-55.

Sihvo, S., Bajos, N., Ducot, B., Kaminski, M., & the Cocon Group. (2003). Women's life cycle and abortion decision in unintended pregnancies. *Journal of Epidemiology Community Health,* 57, 601-605.

Singh, S. & Darroch, J. E. (2000). Adolescent pregnancy and childbearing: Levels and trends in developed countries. *Family Planning Perspective, 32*(1), 14-23.

Soler, H., Quadagno, D., Sly, D. F., Riehman, K. S., Eberstein, I. W., & Harrison, D. F. (2000). Relationship dynamics, ethnicity, and condom use among low-income women. *Family Planning Perspectives, 32*(2), 82-101.

Taylor, D., Levi, A., & Simmonds, K. (2010). Reframing unintended pregnancy prevention; a public health model. *Contraception, 81,* 363-366.

Trussell, J. (2006). The cost of unintended pregnancy in the United States. *Contraception, 75,* 168-170*.*

Unger, J. B., & Molina, G. B. (1998). Contraceptive use among Latina women: Social, cultural and demographic correlates. *Women's Health Issues, 8*(6), 359-369.

United Nations Statistics Division (2006). *Demographic Yearbook 2006. New York: United Nations*. Retrieved from: www.thenationalcampaign.org/national-data/teen-pregnancy-birth-rates.aspx.

Wyatt, G. E. (2009). Enhancing cultural and contextual intervention strategies to reduce HIV/AIDS among African Americans. *American Journal of Public Health, 99*,1941-1945.

Appendix 1: IRB Approval

WRIGHT STATE UNIVERSITY

Office of Research and Sponsored Programs
201J University Hall
3640 Col. Glenn Hwy.
Dayton, OH 45435-0001
(937) 775-2425
(937) 775-3781 (FAX)
e-mail: rsp@wright.edu

DATE: June 17, 2010

TO: Carla Clasen, MPH, RN, Instructor
Center for Healthy Communities
Chloe B. Williams, BS, Student
Center for Healthy Communities

FROM: B. Laurel Elder, Chair
WSU Institutional Review Board

SUBJECT: SC# 4232
'Examination of Patient Population Within Planned Parenthood of Central Ohio'

At the recommendation of the IRB Chair, your study referenced above has been recommended for exemption. Please note that any change in the protocol must be approved by the IRB; otherwise approval is terminated.

This action will be referred to the Full Institutional Review Board for ratification at their next scheduled meeting.

NOTE: This approval will automatically terminate one (1) year after the above date unless you submit a "continuing review" request (see http://www.wright.edu/rsp/IRB/CR_sc.doc) to RSP.

If you have any questions or require additional information, please call Robyn Wilks, IRB Coordinator at 775-4462.

Thank you!

Enclosure

RESEARCH INVOLVING HUMAN SUBJECTS

SC# 4232

ACTION OF THE WRIGHT STATE UNIVERSITY
EXPEDITED REVIEW
Assurance Number: FWA00002427

Title: 'Examination of Patient Population Within Planned Parenthood of Central Ohio'

Principal Investigator: Carla Clasen, MPH, RN, Instructor
Center for Healthy Communities
Chloe B. Williams, BS, Student
Center for Healthy Communities

The Institutional Review Board Chair has approved an exemption with regard to the use of human subjects on this proposed project.

REMINDER: Federal regulations require prompt reporting to the IRB of any changes in research activity [changes in approved research during the approval period may not be initiated without IRB review (submission of an amendment), except where necessary to eliminate apparent immediate hazards to subjects] and prompt reporting of any serious or on-going problems, including unanticipated adverse reactions to biologicals, drugs, radioisotope labeled drugs or medical devices.

B Lamb Eldh Ph.D.

Signed Chair, WSU-IRB
Approval Date: June 17, 2010
IRB Mtg. Date: July 19, 2010

Appendix 2: Planned Parenthood of Central Ohio - Letter of Support

February 15, 2011

To Whom It May Concern:

Planned Parenthood of Central Ohio (PPCO) agrees to collaborate with Chloe Williams in her research project "Safe Choices: An Examination of Patient Population within Planned Parenthood of Central Ohio," pending the approval process described below.

The purpose of this study is to evaluate variations among racial/ethnic groups and contraceptive methods chosen by women patients at PPCO, in order to help research the issue of unintended pregnancy. Reports will be compiled by PPCO staff by contraceptive method chosen in 2009 and racial/ethnic group. No identifying information will be included in these reports.

In addition, clinical charts of all women who obtained an Intrauterine Device (IUD) in 2009 at PPCO will be pulled in order to ascertain which IUD was used (Paragard or Mirena), if the IUD was still in place at the end of the year, and if removed before the end of the year, how long the IUD was in place.

This research will be supervised by Beth Whitted, MBA, DrPH, Director of Community Initiatives.

The approval process will be as follows:

1. All human subject research must be approved by both Planned Parenthood Federation of America (PPFA)'s Research Department and the affiliate Human Subjects Research Review Committee before research has begun.
2. The researcher will present the study to the CEO and appropriate staff members. If the study is determined to fit within the mission of the affiliate and can be managed by existing staff, the study will be forwarded to the Human Subjects Research Review Committee.
3. At the same time, external review processes will begin, including the University's Institutional Review Board.
4. Regardless of project approval by PPFA, the final decision whether or not to participate in the research project shall rest with PPCO's Human Subjects Research Review Committee.

Sincerely,

Lisa D. Perks

Lisa Perks
CEO

Appendix 3: Planned Parenthood Federation of America - Letter of Approval

July 15, 2010

Dear Beth,

This email is in regard to the above referenced study.

The documentation required for the registration and approval of this study in accordance with the PPFA Standards and Guidelines has been received. The documentation includes a competed research registration form, a copy of the IRB approval and approval by Jill Cobrin, CEO of ARMS.

You may accept this email as approval from PPFA Medical Affairs to begin the study. A formal letter of approval will be sent to your affiliate within a week. If you have any questions, please do hesitate to contact me.

Regards,

Mimi

Mimi Tannen, NP
CAPS Consultant
Research Department Consultant
434 W. 33rd Street
NY, NY 10001
212-261-4492

Appendix 4: Public Health Competencies Met

Domain #1: Analytic/Assessment Skills

- Defines a problem
- Determines appropriate uses and limitations of both quantitative and qualitative data
- Selects and defines variables relevant to defined public health problems
- Identifies relevant and appropriate data and information sources
- Evaluates the integrity and comparability of data and identifies gaps in data sources
- Applies ethical principles to the collection, maintenance, use, and dissemination of data and information
- Makes relevant inferences from quantitative and qualitative data
- Obtains and interprets information regarding risks and benefits to the community
- Applies data collection processes, information technology applications, and computer systems storage/retrieval strategies
- Recognizes how the data illuminates ethical, political, scientific, economic, and overall public health issues

Domain #2: Policy Development/Program Planning Skills

- Collects, summarizes, and interprets information relevant to an issue

Domain #4: Cultural Competency Skills

- Identifies the role of cultural, social, and behavioral factors in determining the delivery of public health services

Attitudes:

- Understands the dynamic forces contributing to cultural diversity
- Understands the importance of a diverse public health workforce

Domain #5: Community Dimensions of Practice Skills

- Identifies how public and private organizations operate within a community
- Identifies community assets and available resources

Domain #6: Basic Public Health Sciences Skills

- Identifies and applies basic research methods used in public health

- Identifies the limitations of research and the importance of observations and interrelationships